



Department of Defense INSTRUCTION

NUMBER 6025.17

August 16, 2001

ASD(HA)

SUBJECT: Military Health System (MHS) Patient Safety Program (PSP) (MHSPSP)

- References:
- (a) Sections 742 and 754 of the Floyd D. Spence National Defense Authorization Act for Fiscal Year 2001
 - (b) [DoD Directive 6025.13](#), "Clinical Quality Management Program (CQMP) in the Military Health Services System (MHSS)," July 20, 1995
 - (c) [DoD Directive 5154.24](#), "Armed Forces Institute of Pathology," October 28, 1996
 - (d) Section 1102 of title 10, United States Code
 - (e) through (g), see enclosure 1

1. PURPOSE

This Instruction:

1.1. Implements policy, assigns responsibility, and prescribes procedures under the authority of references (a) and (b), establishes a MHSPSP to identify and report centrally actual and potential problems in medical systems and processes and to implement effective actions to improve patient safety and healthcare quality throughout the MHS. The MHSPSP, to the extent practicable shall emulate the system established for reporting, compilation, and analysis of errors in the provision of healthcare under the Department of Veterans Affairs (DVA) healthcare system.

1.2. Prescribes procedures in every military medical treatment facility (MTF) for a dedicated program for avoiding medical errors and improving patient safety that is focused on prevention, not punishment, and on improving medical systems and processes to overcome preventable errors.

1.3. Establishes a MHS Patient Safety Center (MHSPSC), including a MHS Patient Safety Registry (MHSPSR) through the Armed Forces Institute of Pathology (AFIP) (reference (c)).

1.4. Establishes two Centers of Excellence (COE) in the MHSPSC to develop programs to improve communication, coordination, and teamwork in the provision of healthcare in MTFs and operational units.

1.5. Complies with the requirements for confidentiality of medical quality assurance (QA) records under 10 U.S.C. 1102 and DoD Directive 6040.37 (references (d) and (e)).

1.6. Establishes a Healthcare Team Coordination Program.

2. APPLICABILITY

This Instruction applies to the Office of the Secretary of Defense, the Military Departments, the Chairman of the Joint Chiefs of Staff, the Combatant Commands, the Office of the Inspector General of the Department of Defense, the Defense Agencies, the DoD Field Activities, and all other organizational entities of the Department of Defense (hereafter referred to collectively as "the DoD Components").

3. DEFINITIONS

Terms used in this Instruction are in enclosure 2.

4. RESPONSIBILITIES

4.1. The Assistant Secretary of Defense for Health Affairs under the Under Secretary of Defense for Personnel and Readiness shall:

4.1.1. Monitor the effectiveness of the MHSPSP and issue such additional guidance as needed.

4.1.2. Have the authority to grant exceptions to the requirements of this Instruction when indicated by unforeseen circumstances.

4.1.3. Establish appropriate cooperative arrangements between the MHSPSP and the Department of Veterans Affairs and other patient safety initiatives of the

Federal Government, State governments, and appropriate non-government organizations that are likely to promote the mutual success of such activities. Any such cooperative arrangements shall maintain the confidentiality of records and information under 10 U.S.C. 1102 and DoD Directive 6040.37 (references (d) and (e)).

4.1.4. Establish a Patient Safety Council that includes representatives of the Military Departments, TRICARE Management Activity (TMA), the AFIP, the DoD Office of General Counsel, the Uniformed Services University of the Health Sciences (USUHS) and such other governmental entities as the Assistant Secretary of Defense for Health Affairs (ASD(HA)) determines applicable. The Council shall review the reports from MHSPSC, patient safety initiatives in the MHS, other Federal Agencies and the private sector, and other patient safety issues in the MHS and report to the ASD(HA) no less than once a year on medical safety improvements and recommended policy changes.

4.2. The Secretaries of the Military Departments shall:

4.2.1. Implement this Instruction.

4.2.2. Authorize the Surgeons General of the respective Military Departments to participate fully in the MHSPSP, including initiatives to promote the objectives of the program, monitor for inappropriate use of information generated, and provide recommendations to the ASD(HA) for program improvements.

4.2.3. To ensure adequate representation and participation of the Military Departments, assign appropriate military personnel staff to the MHSPSC.

4.3. The Director of the Armed Forces Institute of Pathology shall establish and maintain the MHSPSC, which shall:

4.3.1. Establish and maintain the MHSPSR consistent with this Instruction.

4.3.2. Make all de-identified information in the MHSPSR available to the ASD(HA), the Secretaries of the Military Departments, the Surgeons General, the Director of the TMA, the President of the USUHS, and the MTF Commanders.

4.3.3. Review reports of adverse events, close calls, and root-cause analyses (RCA); analyze the data; develop and execute action plans for addressing patterns of patient care errors; review and integrate processes for reducing errors and enhancing patient safety and create and distribute quarterly reports, in accordance with subparagraph 5.6.2. The execution of action plans shall be through the Patient Safety Council.

4.3.4. Coordinate with other Federal Agencies on PSP activities, including the Department of Health and Human Services (DHHS) and the Department of Transportation (DOT), on functions of the MHS affecting the non-DoD Uniformed Services, the VA, and the Agency for Healthcare Research and Quality of the DHHS.

4.3.5. Coordinate, promote, and perform research to support the MHSPSP and the Healthcare Team Coordination Programs (HCTCP) using information maintained by the MHSPSR.

4.3.6. Have authority to contract with a qualified and objective external organization to manage the national patient safety database of the Department of Defense.

4.3.7. Monitor patient safety activities of State governments, and non-governmental organizations and include in quarterly reports under subparagraph 5.6.2. information derived from such sources that shall support and promote patient safety activities of the MHS.

4.3.8. Establish two COEs for the development, validation, proliferation, and sustainment of the HCTCP, one of which shall support all fixed military healthcare organizations, the other of which shall support all combat casualty care organizations.

4.3.9. Provide, through the ASD(HA), to the Agency for Healthcare Research and Quality of the DHHS any reports that the ASD(HA) determines applicable.

4.3.10. Provide other support for an effective MHSPSP, including such other actions, as the ASD(HA) may direct.

4.4. The Director, TMA shall support the successful implementation of the MHSPSP.

4.5 The President, Uniformed Services University of the Health Sciences shall, in the operation of education, training, clinical, and research programs of USUHS, promote the objectives of the PSP.

5. PROCEDURES

5.1. Establishment of a MTFPSP. The Commander of every MTF shall establish and implement a PSP consistent with this Instruction and applicable Service regulations. The administration of the MTFPSP shall be through a MTF Patient Safety

Office or Directorate (MTFPSO/D), which shall function as an integral part of the QA process of the MTF.

5.1.1. The MTFPSP shall have procedures and standards for the following activities:

5.1.1.1. Receipt from clinical and administrative staff and patients or their families of reports of adverse events, sentinel events, and close calls.

5.1.1.2. Analysis or review of reports of adverse events, sentinel events, and close calls, including written findings and recommendations on potential improvements in systems and processes to reduce the frequency and severity of medical errors.

5.1.1.3. Prompt acknowledgement of reports and timely feedback to staff making reports of actions planned to improve patient safety.

5.1.1.4. Initiation of actions, through administrative and clinical staff and senior management, intended to improve patient safety with subsequent follow-up evaluation of their effectiveness.

5.1.1.5. Compiling, maintaining, and using data to identify additional opportunities to improve patient safety.

5.1.1.6. Submission of information and reports from the MTF to the MHSPSR in the MHSPSC at the AFIP.

5.1.1.7. Provide guidance to staff to ensure that in cases in which serious medical errors cause harm to a patient, a qualified healthcare provider shall inform the patient or applicable family members. Information provided may not include medical QA records and information prohibited from disclosure by 10 U.S.C. 1102 (reference (d)). That information is provided as a matter of clinical policy and does not affect any rights or obligations in legal or administrative proceedings.

5.1.2 The MTF commander shall designate an individual as the Patient Safety Manager (PSM) to direct the MTFPSP and shall ensure that program activities receive interdisciplinary support from the MTF staff and other support necessary for an effective program. The PSM and other personnel designated by the MTF commander shall receive PSP training from the MHSPSC before the initiation of the program in the MTF.

5.1.3. All clinical and administrative personnel shall be educated about the MHSPSP and the MTF-related activities, encouraged to report adverse events, sentinel events, and close calls, to support program activities, and be given periodic updates on its procedures and activities.

5.1.4. Medical teams programs emphasizing communication, coordination, and teamwork techniques shall be included in the overall education program.

5.2. Joint Commission of Accreditation of Healthcare Organizations (JCAHO) Sentinel Event Standards

5.2.1 All sentinel events defined by JCAHO, as reportable to JCAHO, shall be reported. The completed RCA and action plan, consistent with JCAHO policy and time limits, shall be made available to JCAHO.

5.2.2. MTFs shall comply with JCAHO Patient Safety and Medical/Healthcare Error Reduction Standards.

5.3. Conducting RCA. The PSP shall include a RCA and action plan (or aggregate review under subparagraph 5.3.3., below) of adverse events and close calls scored as a "category 3" under the "Safety Assessment Code (SAC) Matrix" at enclosure 3. The MTFs are encouraged to conduct RCAs on other adverse events and close calls that they deem necessary.

5.3.1. The RCA (or aggregate review) and action plan shall include written findings regarding the underlying systems and processes involved in the event, including the identification of actual and potential problems in those systems and processes, and recommendations for corrective action plans. The RCA and action plan shall be completed and approved by the MTF commander within 45 days of the date on which the PSPM becomes aware of the adverse event.

5.3.2. The RCA and action plan shall be provided to the MTF official(s) with responsibility for the systems or processes involved so they may implement and evaluate the effectiveness of corrective actions.

5.3.3. A quarterly aggregate review may be performed instead of an individual event RCA for certain types of more common adverse events or close calls. The types of adverse events or close calls for which a quarterly aggregate review may be used are listed in enclosure 2. That list may be changed by an ASD(HA) memorandum. An aggregate review may not be used for any JCAHO reviewable sentinel events; an individual RCA shall be performed for all such events.

5.3.4. RCAs and aggregate reviews are conducted for improving medical systems and processes, not for personnel management. Although consideration of information discovered in the course of RCAs and aggregate reviews for personnel management matters is not prohibited, MTF commanders, credential, and/or privileging committees, medical malpractice claims peer review committees, and other entities charged with oversight of professional behavior and competence shall rely to the maximum extent practicable on information from other review systems and processes for those purposes. Limiting the use of PSP information to improve systems and processes is essential for promoting maximum staff support for and participation in the PSP.

5.4. Referral of Information on Intentional Unsafe Acts. The investigation of and consideration of corrective actions on intentional unsafe acts are not within the primary authority or responsibility of the PSP. If in the course of the activities of the PSP, information about intentional unsafe acts is revealed, the original report shall be referred to applicable command authorities. Primary authority to investigate and consider corrective actions on the matter shall be outside the PSP.

5.4.1. Findings of intentional unsafe acts that result from gross negligence or possible criminal activity shall be reported by the command authorities to the applicable military criminal investigative organization, and the Defense Criminal Investigative Service, OIG, DoD.

5.4.2. Some events fall within the definitions of both "adverse events" and "intentional unsafe acts." For example, an infant abduction shall be both a crime and a JCAHO-reportable sentinel event requiring a RCA. When an event appears to be both an "adverse event" and an "intentional unsafe act," primary authority and responsibility is outside the PSP. The PSP shall proceed with a review, including a RCA, if applicable, of the systems and processes of the facility implicated in the actual or potential intentional unsafe act, but shall defer to the separate investigation and consideration on any matter of culpability of any person involved in the act.

5.5. Reporting to the MHSPSC. The manager of the MTFPSO/D shall submit regular reports (at least on a quarterly basis) to the MHSPSC, in accordance with guidance in enclosures 3 and 4.

5.5.1. The report(s) shall include all adverse events and close calls for which a RCA (or aggregate review) is required by subparagraph 5.3., above; copies of all RCAs and aggregated reviews completed during the reporting period and associated action plans; the number of intentional unsafe acts identified by the MTFPSP; and a report on other actions taken by the MTF based on lessons learned under the MTFPSP.

5.5.2. The data elements at enclosure 4 shall be used. Those elements may be changed by the ASD(HA) by memorandum.

5.5.3. The reports and other information (including copies of RCAs, aggregate reviews, and action plans) submitted to the MHSPSC shall not include names or other identifying information on patients or healthcare providers in adverse events, sentinel events, and close calls. All information received by the PSC shall be de-identified before entry into the registry.

5.6. Administration of the MHSPSC

5.6.1. The information reported to the MHSPSC shall be used exclusively for improving healthcare systems and processes that impact on medical errors and patient safety. MHSPSC information shall not be used for any adverse administrative, privileging or other personnel actions.

5.6.2. Analysis of the de-identified information submitted to the MHSPSC shall be used to provide quarterly reports to the ASD(HA), the Secretaries of the Military Departments, the Surgeons General of the Military Departments, the Director of TMA, the President of the USUHS, and each MTF commander. In coordination with the Patient Safety Council, information reported to the MHSPSC shall be used to develop and execute action plans for addressing patterns of actual or potential patient care errors and to promulgate patient safety standards for the MHS.

5.7. Confidentiality of Records and Information of the PSP. All records and information of the PSP, including those at each MTF, at the MHSPSC, stored in the MHSPSR, and at all other levels of the MHS, are medical QA records and are confidential under 10 U.S.C. 1102 and DoD Directive 6040.37 (references (d) and (e)). Aggregate statistical information at the DoD-wide or Service-wide levels may be provided consistent with references (d) and (e). Except as specifically authorized by this Instruction (such as for JCAHO sentinel events reporting under paragraph 5.2., above), PSP records or information shall not be disclosed unless authorized by references (d) and (e), and also either required by other applicable authority (such as a legally valid subpoena or order) or authorized by the ASD(HA).

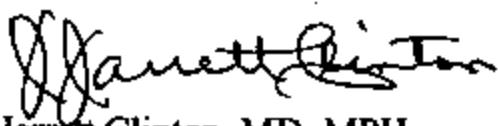
5.8. HCTCP. The PSP includes implementation of the HCTCP, a focused effort to improve systems and processes affecting the integration of multiple healthcare disciplines to produce effective communication, coordination, and teamwork in delivering quality healthcare. The HCTCP shall be implemented in phases in all fixed and combat casualty care organizations and in all medical specialty departments and areas, beginning with emergency medicine and obstetrics and/or gynecology. Phasing shall be coordinated through the Patient Safety Council to result in DoD-wide phasing at a rate of not less than ten organizations in each fiscal year (FY) and not less than one medical specialty department or area in each FY.

6. INFORMATION REQUIREMENTS

The Military Treatment Facility Patient Safety Program Reports required by this Instruction have been assigned Report Control Symbol DD-HA(M)2129, Military Health System Patient Safety Registry Close Calls and Adverse Events Reports in accordance with DoD 8910.1-M (reference (f)).

7. EFFECTIVE DATE

This Instruction shall take effect 120 days from the date of issuance.


J. Jarrett Clinton, MD, MPH
Acting Assistant Secretary of Defense
(Health Affairs)

Enclosures - 4

- E1. References, continued
- E2. Definitions
- E3. Safety Assessment Code
- E4. Data Elements for Reports of RCAs and Aggregate Reviews

E1. ENCLOSURE 1

REFERENCES, continued

- (e) [DoD Directive 6040.37](#), "Confidentiality of Medical Quality Assurance (QA) Records," July 9, 1996
- (f) [DoD 8910.1-M](#), "DoD procedures for Management of Information Requirements," June 30, 1998
- (g) Title 29, Code of Federal Regulations, Part 1960.70, "Reporting of Serious Accidents," current edition
- (h) The Safe Medical Devices Act of 1970, Pub. L. 101-629

E2. ENCLOSURE 2

DEFINITIONS

E2.1. DEFINED TERMS

E2.1.1. Adverse Events. Occurrences or conditions associated with care or services provided that cause unexpected harm to a patient during such care or services. These may be due to acts of commission or omission. Adverse events do not include intentional unsafe acts. "Categorization of adverse events" is defined in enclosure 3. The method for categorizing events may be changed by an ASD(HA) memorandum.

E2.1.2. Sentinel Events. As defined by JCAHO, sentinel events are unexpected occurrences involving death or serious physical or psychological injury or risk thereof.

E2.1.3. Close Calls. An event or situation that may have resulted in harm to a patient, but did not, either by chance or through timely intervention. Such events have also been referred to as "near miss" incidents.

E2.1.4. Intentional Unsafe Act. Any alleged or suspected act or omission of a provider, staff member, contractor, trainee, or volunteer pertaining to a patient that involves a criminal act; a purposefully unsafe act; patient abuse; or an event caused or affected by drug or alcohol abuse. Intentional unsafe acts are matters for law enforcement, disciplinary system, or administrative investigation.

E2.1.5. Root Cause Analysis (RCA). A process for identifying the basic or contributing causal factors associated with adverse events and close calls. A root cause analysis includes the following characteristics:

E2.1.5.1. The review is interdisciplinary in nature with involvement of those closest to the process.

E2.1.5.2. The analysis focuses primarily on systems and processes rather than individual performance.

E2.1.5.3. The analysis digs deeper by asking "what" and "why" until all aspects of the process are reviewed and all contributing factors are identified.

E2.1.5.4. The analysis identifies changes that may be made in systems and processes through either redesign or development of new processes or systems that may improve performance and may reduce the risk of adverse events or recurrence of close calls.

E2.1.6. Aggregate Review. The process of analyzing recurring incidents, events, or close calls (such as medication errors) for trends and patterns to use for process improvement.

E3. ENCLOSURE 3SAFETY ASSESSMENT CODE MATRIXE3.1. SEVERITY CATEGORIES

E3.1.1. Key factors for the severity categories are extent of injury, length of stay, and level of care required for remedy. The four categories, below, apply to actual adverse events (see Figure E3.F1., below).

E3.1.2. For actual close calls and/or adverse events, assign severity based on the patient's actual condition. Some incidents that occur may have such an overwhelming potential for a catastrophic event that an RCA also shall be necessary, but that determination shall be left to the discretion of the MTF.

Figure E3.F1. Four Categories of Adverse Events

<u>Catastrophic</u> <u>Patients with Actual:</u> Death or major permanent loss of function (sensory, motor, physiologic, or intellectual) not related to the natural course of the patient's illness or underlying condition (i.e., acts of commission or omission). Suicide (inpatient or outpatient). Rape. Hemolytic transfusion reaction. Surgery/Procedure on the wrong patient or wrong body part. Infant abduction or infant discharge to the wrong family. Death or major permanent loss of function that is a direct result of injuries sustained in a fall; or associated with an unauthorized departure from an around-the-clock treatment setting; or the result of an assault or other crime.	<u>Major</u> <u>Patients with Actual:</u> Permanent lessening of bodily functioning (sensory, motor, physiologic, or intellectual) not related to the natural course of the patient's illness or underlying conditions (i.e., acts of commission or omission). Disfigurement. Surgical intervention required. Increased length of stay or level of care of 3 days or more.
<u>Moderate</u> <u>Patients with Actual:</u> Increased length of stay or higher level of care for less than 3 days.	<u>Minor</u> <u>Patients with Actual:</u> No increased length of stay or increased level of care.

E3.2. PROBABILITY OF RECURRENCE

E3.2.1. Like the severity categories, the probability of recurrence applies to actual adverse events and close calls.

E3.2.2. In order to assign a probability rating for an adverse event or close call, it is ideal to know how often it occurs at your facility. Sometimes, the data shall be easily available because it is routinely tracked (e.g., falls with injury, medication errors; etc.). Sometimes, getting a feel for the probability of events that are not routinely tracked shall mean asking for a quick or informal opinion from staff most familiar with those events. Sometimes it shall have to be a personal best educated guess.

E3.2.2.1. High. Likely to occur immediately or within a short period of time

E3.2.2.2. Medium. Likely to occur several times in 1 to 2 years.

E3.2.2.3. Low. May happen greater than 2 years.

How the SAC Matrix Looks

Figure E3.F2. Matrix Sample

Severity and Probability	Catastrophic	Major	Moderate	Minor
High	3	3	2	1
Medium	3	2	1	1
Low	3	2	1	1

E3.4. HOW THE SAC MATRIX WORKS

When pairing a severity category with a probability category for either an actual event or close call, that shall result in a ranked matrix score (3 = highest risk, 2 = intermediate risk, 1 = lowest risk). These ranks, or SACs may then be used for doing comparative analysis, and, for deciding who needs to be notified about the event.

Footnotes

¹ All known reporters of events, regardless of SAC score (1, 2, or 3), shall receive applicable and timely feedback.

² The risk manager shall refer adverse events or close calls related solely to staff, visitors or equipment and/or facility damage to relevant facility experts or services on a timely basis, for assessment and resolution of those situations.

³ A quarterly aggregate RCA may be used for two types of calls (that includes all events or close calls other than actual SAC 3s, since all actual SAC 3s require an individual RCA). Those two types are "falls" and "medication errors." The use of aggregate analysis serves two important purposes. First, greater utility of the analysis (i.e., trends or patterns not noticeable in individual case analysis are more likely to show up as the number of cases increases). Second, it makes wise use of the RCA team's time and expertise. Facilities are encouraged to perform an individual RCA rather than aggregate review on any adverse event or close call that they think merits that attention, regardless of the SAC score.

⁴ 29 CFR 1960.70 (reference (g)) requires each Federal Agency to notify OSHA within 8 hours of a work-related incident, which results in the death of an employee or the in-patient hospitalization of 3 or more employees.

⁵ The "Safe Medical Devices Act of 1990" (reference (h)) requires reporting of all incidents in which a medical device may have caused or contributed to the death, serious injury, or serious illness of a patient or another individual.

E4. ENCLOSURE 4

DATA ELEMENTS FOR REPORTS OF RCAs AND AGGREGATE REVIEWS

E4.1. ROOT CAUSE ANALYSIS

- E4.1.1. Medication errors.
- E4.1.2. Attempted and/or actual patient suicides.
- E4.1.3. Wrong site surgery.
- E4.1.4. Patient injury in restraints.
- E4.1.5. Transfusion error.
- E4.1.6. Patient elopement.
- E4.1.7. Infant abduction and/or wrong family.
- E4.1.8. Fire.
- E4.1.9. Equipment and/or utility system failure.
- E4.1.10. Delay in treatment.
- E4.1.11. Patient falls.
- E4.1.12. Procedure errors and/or problems.
- E4.1.13. Informed consent.
- E4.1.14. Instrument and/or sponge count.
- E4.1.15. Lab procedures.
- E4.1.15. Age.
- E4.1.16. Sex.
- E4.1.17. Date and time of the event.

E4.1.18. Type of event (medication error, wrong site surgery, and patient suicide; etc.).

E4.1.19. Inpatient or outpatient.

E4.1.20. Type of unit (if inpatient).

E4.1.21. Summary of event.

E4.1.22. Specific factors contributing to the event (will vary with type of event).

E4.1.23. Work hours of involved staff if applicable (categorize as "lesser than 10 hours," "greater than 10 - 24 hours," or "greater than 24 hours").

E4.1.24. Information sources (do not include names).

E4.1.25. Patient outcome.

E4.1.26. Specific findings (brief statement of the identified root cause).

E4.1.27. Associated JCAHO standard.

E4.1.28. Specific actions recommended.

E4.1.29. Type of actions (educational, process redesign, and environmental redesign; etc.).

E4.2. DATA ELEMENTS FOR AGGREGATE REVIEWS

E4.2.1. Falls.

E4.2.1.1. Age.

E4.2.1.2. Sex.

E4.2.1.3. Date and time of the event.

E4.2.1.4. Prior fall(s).

E4.2.1.5. Designated as high risk for falls?

E4.2.1.6. Need for assistance with mobility, transfers and/or ADLs.

E4.2.1.7. Gait or balance limitations.

E4.2.1.8. Incontinence.

E4.2.1.9. Confusion or memory problems.

E4.2.1.10. Other limitations.

E4.2.1.11. Related medical conditions.

E4.2.1.12. Medication effects.

E4.2.1.13. Assistive devices.

E4.2.1.14. Communications issues.

E4.2.1.15. Environmental problems.

E4.2.1.16. Summary of what occurred and treatment plan changes.

E4.2.1.17. Comments.

E4.2.2. Medication Errors

E4.2.2.1.1. Age.

E4.2.2.1.2. Sex.

E4.2.2.1.3. Date and time of the event.

E4.2.2.1.4. Inpatient or outpatient.

E4.2.2.1.5. Type of unit (if inpatient).

E4.2.2.1.6. Processes related to the event (ordering, transcribing, dispensing, administering, and documenting).

E4.2.2.1.7. Work hours of involved staff if applicable (categorize as "less than 10 hours," "greater than 10 - 24 hours," "greater than 24 hours").

E4.2.2.1.8. What happened ("yes" or "no" to following):

E4.2.2.1.8.1. Medication given despite known allergy.

E4.2.2.1.8.2. Omission.

E4.2.2.1.8.3. Overdose.

E4.2.2.1.8.4. Incorrect patient identification.

E4.2.2.1.8.5. Incorrect medication identification.

E4.2.2.1.8.6. Incorrect dose.

E4.2.2.1.8.7. Incorrect route.

E4.2.2.1.8.8. Incorrect schedule.

E4.2.2.1.8.9. Equipment failure.